

ABSTRACT

A polymer electrolyte includes a modified polymeric material, the modified polymeric material including a halogen containing polymer having an enhanced halogen level, the enhanced halogen level relative to a halogen content of the halogen containing polymer formed from polymerization of its monomer. A salt of an alkali metal and an aprotic solvent are also provided. The salt and the aprotic solvent are integrated with the modified polymeric material. The halogen containing polymer is preferably polyvinylchloride (PVC) obtained by emulsion or suspension polymerization of vinylchloride. A method for preparing solid polymer electrolytes includes the steps of providing a halogen containing polymer, halogenating the halogen containing polymer, wherein an enhanced halogen containing modified polymer material results. The enhanced halogen level is relative to the halogen content of the halogen containing polymer formed from polymerization of its monomer. The resulting modified polymer material is then blended together with at least one salt of an alkali metal and at least one aprotic solvent.